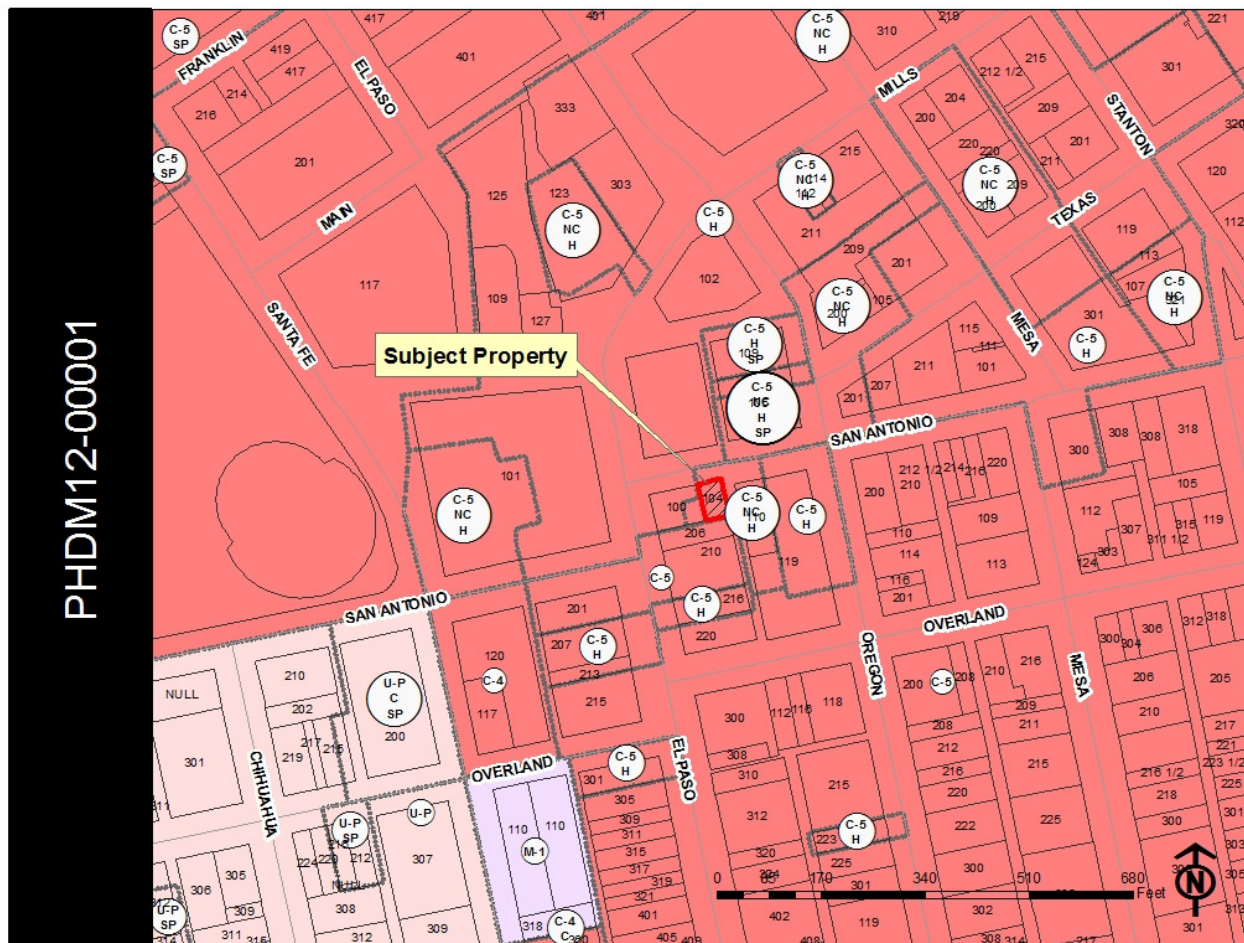




**PHDM12-00001**

**Date:** November 19, 2012  
**Application Type:** Certificate of Demolition  
**Property Owner:** River Oaks Properties, Ltd.  
**Representative:** Geoffrey Wright  
**Legal Description:** 14 Mills 40.00 Ft On San Antonio X 66.00 Ft., Beg 80, City of El Paso, El Paso County, Texas.  
**Historic District:** Downtown  
**Location:** 104-106 E. San Antonio  
**Representative District:** #8  
**Existing Zoning:** C-5/H (Commercial/Historic)  
**Year Built:** 1912  
**Historic Status:** Non-Contributing  
**Request:** Certificate of demolition  
**Application Filed:** 11/05/2012  
**45 Day Expiration:** 12/20/2012

**ITEM #2**



**GENERAL INFORMATION:**

The applicant seeks approval for:

The demolition of the existing building.

**STAFF RECOMMENDATION:**

The Historic Preservation Office recommends DENIAL of the proposed scope of work based on the following recommendations:

*The property has been altered but it is still the embodiment of distinguished characteristics of an architectural type or specimen; can still be identified as the work of an architect or master builder whose individual work has influenced the development of the city; and still embodies distinguished elements of architectural design, detail, materials or craftsmanship which represent a significant architectural innovation.*

*The property is non-contributing yet still has a relationship to other distinctive buildings, sites or areas which are eligible for preservation according to a plan based on architectural, historic or cultural motif.*

*The property can be identified with a person or persons who significantly contributed to the culture and development of the city, region, state or the United States.*

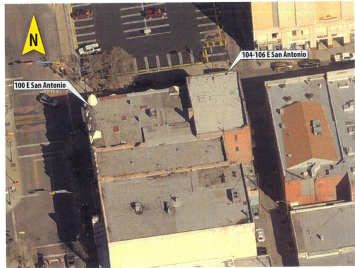
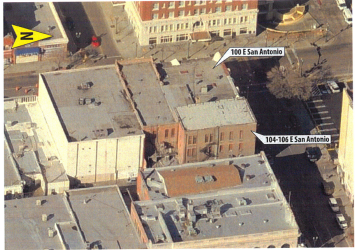
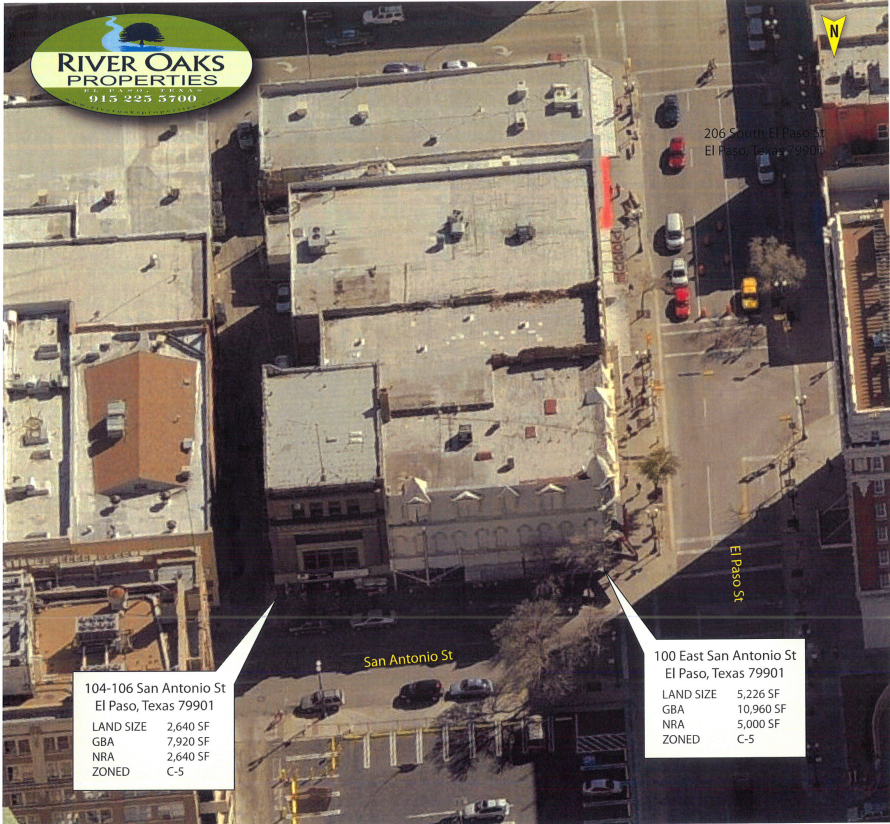
## AERIAL MAP

PHDM12-00001





**AERIAL PHOTOGRAPHS**







October 23, 2012

Mrs. Lori Jasinski  
River Oaks Property  
106 Mesa Park, Drive  
El Paso, TX 79912

**RE: Structural Observations of Existing Building after Fire on Adjacent Structure**

Mrs. Jasinski,

At the request of your office, Henry K. Ng, P.E. and Javier Carlin, P.E. of HKN Engineers conducted some initial observations of the property located at 104 and 106 E. San Antonio Street on April 27, 2012. Since then, we had made several additional visits to the buildings located on the east side of the damaged property to make observations of the existing basement, floors and roof framing as well as the brick masonry walls. We have since reviewed these observations and our conclusions and recommendations are provided herein for your use.

**Overview**

The building consists of a basement with rubble stone retaining walls, concrete framed first and second floors, and wood framed third and fourth floors and a wood framed roof. The framing on the first and second floors consists of concrete slabs on concrete girders supported by concrete columns and exterior brick masonry load bearing walls. The third and fourth floors consist of ¾" tongue and groove wood lathing over 2x12 and 2x10 wood framing spaced at 12 inches on center on interior wood load bearing walls and exterior brick masonry load bearing walls. The roof consists of 6-inch wide wood lathing on 2x8 wood framing spaced at 24 inches on center on load bearing walls. The overall exterior dimensions of the building were approximately 41 feet wide by 66 feet long. The building height was approximately 40 feet above the exterior grade and the basement was measured about 8 feet below grade. The construction probably dated back to the last decade of the 19<sup>th</sup> century,

**Observations**

We found the following observations to be noteworthy:

1. The west wall of the building was common to the building on the west that was consumed by fire. This building was located at the corner of San Antonio and El Paso streets. It pre-dated the other contiguous buildings that were later added on the south and east side of it. Clustering of the building with the use of common walls allowed for a combined resistance to wind and seismic lateral loads.
2. The west side of the building is now exposed to wind loads since shielding from the west building consumed by fire has now been demolished.

Firm#: F-001239

[www.hknengineers.com](http://www.hknengineers.com)  
5825 Onix Dr / El Paso, Texas 79912 / ph. 915.833.2100 / fax. 915.833.3855



3. Some of the walls consist of unreinforced triple-wythe brick masonry. In certain areas, the west wall that abutted the demolished property may have been constructed with single-wythe bricks. The construction of the west wall is suspected to be inconsistent and may be as minimal as a single brick in thickness.
4. The wood joists are embedded into the masonry walls. No positive anchorage was observed to restrain the unreinforced masonry walls other than the friction of the joists being continued in pockets into the wall.
5. The wood lathing is nailed with single shank nails to the joists without double nails at the ends of laths.
6. No positive anchorage was observed on the south and north walls between the floor framing and the walls. The joists run parallel to the walls without indication of steel rod anchorage commonly found in structures dating to the late 19<sup>th</sup> century.
7. The north wall is only 25% solid with 75% of it consisting of storefront glazing and door openings.

#### Discussion

Based on our observations, the structural capacity reduction caused by the destruction of the contiguous structure and the existing framing conditions is significant. Several deficiencies can be found along the path of the load that interrupt the transfer of load and may result in a probable structural failure as follows:

1. The combination or clustering of the destroyed building at the corner of San Antonio and El Paso streets provided a higher degree of redundancy and strength that does not exist anymore. At least three buildings were combined to provide support for each other. Now the property on San Antonio Street is isolated and does not receive that additional support. Seismic and wind loads must be completely resisted only by itself. We will follow the load path from these environmental loads based on this condition.
2. An area of approximately 2,640 square feet is now receiving direct wind exposure on the west side due to the destruction of the building that shielded it from that direct exposure. This is a new condition that the building has not been previously exposed to. This load has to be transferred from the masonry walls receiving the load, to the floor diaphragms and then to the unreinforced masonry shear walls on the north and south sides of the building. However, the significant change in the wind load exposure is not as critical as the seismic loading.
3. The allowable height-to-thickness ratios of the unreinforced masonry walls are within allowable limits prescribed by the International Existing Building Code 2006 where triple-wythe walls are found, but not where the wall thickness was reduced by the fire. Local failure due to a seismic event could be expected where the fire had reduced the wall thickness.



4. The anchorage of the wall to the floor or roof diaphragm does not seem to be adequate due to the lack of anchors. This type of anchorage is not expected at this wall since the joists were framing to the side of an existing wall on the east side of the pre-existing building that was destroyed by the fire. The wall condition from the side of the new addition was meant to be only an interior load bearing wall not requiring the exterior wall anchorage. Due to this, the out of plane capacity of the wall is uncertain since disengagement of the diaphragm can lead to doubling or tripling of the span length. This could lead to failure of the walls in bending and the consequent floor failure from loss of vertical support from the exterior load bearing wall. **Partial collapse of the side of the building could be propagated** by anchorage failure.
5. Even if adequate anchorage was present between the joists and masonry walls, the shear capacity of the tongue and groove floor diaphragms was found to be exceeded by a factor of 2 on the fourth floor and by a factor of 1.5 on the third floor under seismic loading. Shear diaphragm failure at these two floors would result in the instability of the exterior east and west walls and **possible collapse of the upper 26 feet of masonry walls** over the concrete frame levels below and on the adjacent property, resulting in **possible injuries and even loss of human lives**. Catastrophic and sudden shear failures of the concrete girders is one of the failure modes that will be likely to occur in the case of overload from the brick walls and/or the upper wood framing debris falling on the concrete floor below.
6. The lack of shear transfer anchorage between the shear diaphragm and the shear walls on the south and north walls can also lead to similar failure scenarios described before since the shear walls are not engaged to restrain movement in the diaphragms. Uncontrolled movement of the diaphragms can lead to the resistance of the lateral loads by the east and west walls out of their planes. Instead of the walls receiving lateral support from the diaphragms, they provide support to them with the subsequent structural failure induced by the wall instability.
7. In the improbable case that the continuity of the load path was not interrupted by the deficiencies listed above and the total shear force was transferred to the south and north shear walls, the shear wall capacity on the north wall is still insufficient to completely resist the total seismic base shear force. The total allowable shear capacity of the north and south walls combined is 68% of the required capacity.

#### Recommendations

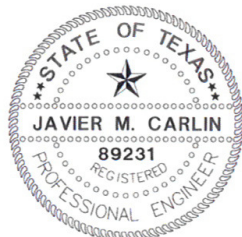
The observations conducted by our office were solely to identify any signs of distress and deficiencies within the structure after the destruction of the adjacent building due to fire. It is evident that **pre-existing conditions were aggravated by the destruction of the adjacent building creating new structural conditions that previously were not of consideration.**

We strongly recommend that the building to not be occupied until the structural deficiencies are addressed, or **the building be completely demolished given the imminent risk to structural failure associated with a seismic event that is substantially less than the required design level. Rehabilitation of the building to retrofit the observed deficiencies would require complete rebuilding of the upper two floors and roof to provide suitable diaphragm and wall to diaphragm anchorage, besides providing additional lateral resisting system and foundations for the north side of the building where the shear wall is inadequate.** In addition,

partial repair of the concrete diaphragms to wall anchorage would be necessary pending further investigation not covered in this study. Given the high cost of structural retrofit for seismic adequacy, it is our opinion, that the owner should consider complete replacement of the structure in conformance with current construction practice and building code requirements or at minimum removal of the upper two floors.

Please do not hesitate to contact us if you have any questions.

Sincerely,



*Javier M. Carlin*

10-23-12  
Javier M. Carlin, P.E.



*Henry K. Ng*

10-23-12  
Henry K. Ng, P.E.